

Four Corners Air Quality Task Force Mitigation Option Development Outline & Examples August 2006 (revised from the Cortez Meeting)

Mitigation Option Development Outline

For each Mitigation Option, write a section on the following, within the scope of the group's limitations, including quantitative and/or qualitative analysis (1-2 pp. total*):

I. Description of the mitigation option, including benefits (air quality, environmental, economic, other), tradeoffs (one pollutant for another, etc.) and burdens (on whom, what) -- (indicate if assistance is needed from Cumulative Effects and/or Monitoring work groups)

II. Description of how to implement

A. Mandatory or voluntary

B. Indicate the most appropriate agency(ies) to implement

III. Feasibility of the option (indicate if assistance is needed from Cumulative Effects and/or Monitoring work groups)

A. Technical

B. Environmental

C. Economic

IV. Background data and assumptions used (indicate if assistance is needed from Cumulative Effects and/or Monitoring work groups)

V. Any uncertainty associated with the option (Low, Medium, High)

VI. Level of agreement within the work group for this mitigation option.

VII. Cross-over issues to the other Task Force work groups (please describe the issue and which groups)

***Please note: the 1-2 pp limit is recommended. Please include references, citations, and graphics in an appendix that will be included directly following the option paper. If you have questions, please discuss with your work group coordinator.**

Mitigation Option Examples (for illustration purposes only)

Example #1: Build light rail transportation line serving Four Corners Region

I. Description of the mitigation option, including benefits (air quality, environmental, economic, other) and burdens (on whom, what):

This option involves the development of a light rail system traveling at speeds of up to 80 mph to transport passengers to locations throughout the region. The air quality benefits include reduction of 1000 passenger vehicles per day throughout the region, which results in a net reduction of emissions of NO_x by ____ tons per day, SO_x by ____ tons per day, a reduction in greenhouse gas emissions of _____ and PM_{2.5} emissions by ____ tons per day. Other environmental impacts include noise from the rail line at nearby residences, wildlife and livestock that may be killed by the train, and temporary environmental impacts during construction of the rail line.

Economic burdens include the cost of the rail system, which may be partially offset by the benefits to human health of improved air quality and reduction of highway traffic (and traffic accidents) in the region.

There may be some environmental justice issues associated with the placement of the track, if the track travels through socio-economically disadvantaged communities.

II. Description of how to implement

A. Mandatory or voluntary: The construction of adequate infrastructure to make the rail line a viable option is mandatory; however, ridership would be on a voluntary basis.

B. Indicate the most appropriate agency(ies) to implement: NM Dept. of Transportation, Colorado Dept. of Transportation, Federal Highway Administration.

III. Feasibility of the option

A. Technical: Similar rail systems are prevalent worldwide, this option is technically feasible.

B. Environmental: The environmental benefits of mass transit are well documented.

C. Economic: There are no rail systems in the US that are economically self-sustained based on rider fares; however, when public health and safety benefits are factored in, rail systems are much more economically viable.

IV. Background data and assumptions used

1. Light Rail evaluation plan by San Juan County (reference) \$ for infrastructure / maintenance
2. % / type vehicle traffic displaced (ref), correlate to emissions reductions (US EPA Mobile 6)
3. Light rail engine fuel type, consumption rates, and emissions factors (reference)

V. Any uncertainty associated with the option (Low, Medium, High)

High

VI. Level of agreement within the work group for this mitigation option.
3 member drafting team only supporters for this option

Example #2: Develop a wind farm in the Four Corners region

I. Description of the mitigation option, including benefits (air quality, environmental, economic, other) and burdens (on whom, what):

This option involves the development of a wind farm to generate and distribute electricity. Based on a 10,000-acre farm space, the wind farm would generate ____ MW of electricity. The generation of electricity by wind has no air quality impact, but may result in negative consequences for some birds. Visually, some members of the public may be disturbed by the large turbines. Economic burdens include the cost of the turbines at \$____ per turbine.

II. Description of how to implement

A. Mandatory or voluntary: Voluntary for entity developing the wind farm.

B. Indicate the most appropriate agency(ies) to implement: State governments may incentivize wind energy development.

III. Feasibility of the option

A. Technical: Wind farms are technically feasible, and in looking at meteorological data from the region, it appears that threshold wind speeds are adequate to produce wind power.

B. Environmental: The environmental benefits of wind farms can be found at the following website: <http://www.montanagreenpower.com/wind/index.html>

C. Economic: The cost of wind turbines makes this option unfeasible for individuals, but power generation companies may have an interest, especially with state and federal incentives.

IV. Background data and assumptions used

1. Sandia National Laboratories (reference) cost of energy from wind system (x cents/kwh)
2. Four Corners meteorological data (NOAA)
3. Real time wind speeds (NMED-AQB: <http://air.state.nm.us/>)

*Tagged for Cumulative Effects Work Group

V. Any uncertainty associated with the option

Low

VI. Level of agreement within the work group for this mitigation option

50% for moving forward with commercial trial, rest of work group suggests a pilot scale demonstration

Example #3: Drill rig emissions must comply with Tier 2 requirements by January 1, 2008

I. Description of the mitigation option, including benefits (air quality, environmental, economic, other) and burdens (on whom, what):

Cumulative emissions from drill rigs likely contribute to significant visibility degradation in the region. This recommendation is consistent with the Region 8 Oil and Gas Initiative and with recent Wyoming DEQ recommendations. States should analyze potential initiatives to achieve emissions reductions from these sources to reduce deposition, the cumulative impacts to visibility and ensure compliance with the NAAQS and PSD increments.

Group A supports this mitigation option because it will significantly improve regional air quality significantly by reducing hundreds of tons of NO_x emissions in the region and is technologically feasible for drill rig operators to implement.

Group B believes that this measure is not economically viable. This measure would pose a significant financial burden upon the drill rig operators that would be passed along to the well owners for marginal improvements to air quality on a local scale.

II. Description of how to implement

A. Mandatory or voluntary

Group A: States should enact regulations to require all drill rigs to meet the Tier 2 federal requirements by January 1, 2008.

Group B: Voluntary programs would allow drill rig operators to come into compliance gradually, as old equipment failed.

B. Indicate the most appropriate agency(ies) to implement: NMED, CDPHE, tribal governments, as appropriate.

III. Feasibility of the option

A. Technical:

Group A: Engines are available for drill rigs that meet the Tier 2 standards. Retrofit technology to existing drill rig engines is also available that allows engines to meet Tier 2 standards.

B. Environmental:

The environmental benefits include the reduction of xxx tons of NO_x and xxx tons of particulate matter per drill rig retrofitted.

Group A believes that this is a significant environmental benefit.

Group B believes this reduction in emissions (xxx% of all emissions in the Four Corners region) is insignificant.

C. Economic:

The cost per retrofitted drill rig is estimated to be \$xxxx.

Group A believes that the costs of retrofitting all drill rig engines with Tier 2 compliant engines is substantial, but achievable for drill rig operators.

Group B believes that this cost will hinder economic development in the region.

IV. Background data and assumptions used

1. Updated San Juan & Rio Arriba Ozone Precursor Emissions Inventory for Oil and Gas (ref)
2. Northern San Juan Basin EIS for Coalbed Methane Development (BLM, 2004)
3. Total # of wells drilled per year (reference Oil Conservation Division)
4. Emissions rates for drill rig engines (reference)
5. Average cost (\$) per retrofitted drill rig (reference)
6. Lifetime of average drill rig (?) years (reference)
7. Drill duration in major producing pools (reference)

*Tagged for Cumulative Effects Work Group / *Tagged for Monitoring Work Group

V. Any uncertainty associated with the option

Emissions benefits well documented, Medium uncertainty in cost and emissions rates pre/post retrofit.

VI. Level of agreement within the work group for this mitigation option.

Overall support to follow through with implementation of this option over a (x, y) year time frame. xxx% to be retrofitted in x years, yyy% to be retrofitted in y years.